

CLAIMS

What is claimed is:

1. A media registration mechanism for aligning print media, the mechanism comprising:  
first and second registration walls;  
a plurality of media carriers for moving the print media relative to the first and second registration walls, the plurality of media carriers oriented substantially parallel to each other and positioned between the first and second registration walls; and  
the plurality of media carriers configured to be selectively driven at different speeds in order to selectively steer the print media towards either the first or second registration wall to substantially align the print media against the first or second registration wall.
2. The mechanism of claim 1 wherein the plurality of media carriers are orientated substantially parallel to the two registration walls.
3. The mechanism of claim 1 wherein the plurality of media carriers include a plurality of belts.
4. The mechanism of claim 1 wherein the plurality of media carriers include at least a first belt and a second belt, the first belt positioned adjacent to the first registration wall and the second belt being positioned adjacent to the second registration wall.
5. The mechanism of claim 4 wherein the print media is steered towards the first registration wall when the speed of the second belt is greater than the speed of the first belt.
6. The mechanism of claim 4 wherein the print media is steered towards the second registration wall when the speed of the first belt is greater than the speed of the second belt.

7. The mechanism of claim 4 further comprising drive means coupled to the first and second belts to selectively drive the plurality of first and second belts at different speeds.
8. The mechanism of claim 7 wherein the drive means includes a drive mechanism coupled to the plurality of first and second belts.
9. The mechanism of claim 8 wherein the drive mechanism includes a bi-directional motor configured to be selectively rotated in a clockwise or counterclockwise direction in order to selectively change the speeds of the plurality of first and second belts.
10. The mechanism of claim 9 wherein the drive mechanism comprises a drive shaft coupled to the motor, the drive shaft being coupled to first and second coupling mechanisms configured to drive the first and second belts, respectively.
11. The mechanism of claim 7 wherein the drive means includes a first motor coupled to the first belt and a second motor coupled to the second belt.
12. A mechanism for aligning print media in an image forming device, the mechanism comprising:
  - first and second alignment walls;
  - first and second media carriers for moving print media in a direction substantially parallel to the first and second alignment walls, the first and second media carriers positioned side-by-side to each other and between the first and second alignment walls; and
  - a drive mechanism coupled to the first and second media carriers, the drive mechanism being selectively configurable to drive the first and second media carriers at a first speed ratio to cause the print media to rotate towards and substantially aligns with the second alignment wall, the drive mechanism being reconfigurable to drive the first and second media carriers at a second speed ratio to cause the print media to rotate towards and substantially align with the first alignment wall.

13. The mechanism of claim 12 wherein the first media carrier is positioned between the first alignment wall and the second media carrier, and the second media carrier is positioned between the first media carrier and the second alignment wall.
14. The mechanism of claim 13 wherein the first speed ratio is greater than 1:1 such that the speed of the first belt is greater than the speed of the second belt.
15. The mechanism of claim 13 wherein the second speed ratio is less than 1:1 such that the speed of the second belt is greater than the speed of the first belt.
16. The mechanism of claim 12 wherein the first media carrier, the second media carrier and the first and second alignment walls are substantially parallel to each other.
17. The mechanism of claim 12 wherein the first and second media carriers include at least one belt for moving the print media in a linear direction.
18. The mechanism of claim 12 further including at least a third media carrier positioned between the first and second media carriers.
19. An image forming device comprising:
  - a media path configured to carry print media through the image forming device;
  - an alignment mechanism including a plurality of alignment walls, the alignment mechanism being dynamically configurable to align the print media against a selected alignment wall from the plurality of alignment walls as the print media is carried along the media path; and
  - an image forming mechanism configured to form an image on the aligned print media received from the alignment mechanism.
20. The image forming device of claim 19 wherein the plurality of alignment walls include first and second alignment walls positioned parallel to each other and parallel to the media path such that the print media is carried between the first and second alignment walls.

21. The image forming device of claim 19 wherein the alignment mechanism includes a plurality of belts being selectively operable at different speeds to cause the print media to rotate towards the selected alignment wall.
22. The image forming device of claim 21 wherein the speed of each belt increases as the distance between each belt and the selected alignment wall increases.
23. The image forming device of claim 19 wherein the alignment mechanism includes a plurality of belts, each being configured to move the print media in a linear direction along the media path, the plurality of belts being positioned parallel to and between the first and second alignment walls.
24. An image forming device comprising:
  - a media registration mechanism including:
    - first and second registration fences;
    - first and second media carriers for moving print media along a media path in a direction substantially parallel to the first and second fences, the first and second media carriers positioned adjacent to each other and between the first and second fences such that the first media carrier is adjacent the first fence and the second media carrier is adjacent the second fence.
    - the first and second media carriers, upon concurrently engaging the print media, configured to steer the print media towards the first fence until an edge of the print media is substantially aligned against the first fence when the second media carrier is operated at a speed greater than the first media carrier; and
    - the first and second media carriers, upon concurrently engaging the print media, configured to steer the print media towards the second fence until an opposite edge of the print media is substantially aligned against the second fence when the speeds of the first and second media carriers are reversed such that the first media carrier is operated at a speed greater than the second media carrier.

25. The device of claim 24 wherein the first and second media carriers are configured to steer the print media towards the first fence until the edge of the print media is substantially aligned against the first fence when the print media is designated for single-sided imaging, and wherein the first and second media carriers are configured to steer the print media towards the second fence until the opposite edge of the print media is substantially aligned against the second fence when the print media is designated for duplex imaging.
26. The device of claim 25 further comprising a media flipping mechanism configured to rotate the print media about an axis that is parallel to the media path when the print media is designated for duplex imaging, the media flipping mechanism positioned upstream from the media registration mechanism.
27. The device of claim 26 further comprising a second image forming mechanism wherein the media registration mechanism is positioned between the first image forming mechanism and the second image forming mechanism along the media path.
28. The device of claim 24 further comprising drive means coupled to the first and second media carriers for selectively driving the first and second media carriers at different relative speeds.
29. A method of registering print media in an image forming device including a registration mechanism, the registration mechanism including opposing first and second registration walls and, a plurality of media carriers positioned between the first and second registration walls where the plurality of media carriers are configured to move the print media in a linear direction along a media path relative to the first and second registration walls, the method comprising:
  - carrying the print media to the registration mechanism such that the plurality of media carriers engage the print media; and
  - selectively driving the plurality of media carriers at different speeds to selectively cause the print media to skew towards and substantially align an edge of the print media against the first or second registration wall.

30. The method of claim 29 further including the step of advancing the print media to an image forming mechanism once the print media has been registered.
31. The method of claim 29 wherein the print media is skewed towards the second registration wall when a first media carrier of the plurality of media carriers is driven at a speed greater than a second media carrier of the plurality of media carriers.
32. The method of claim 29 wherein the selectively driving includes selectively changing a speed of one or more of the plurality of media carriers.
33. The method of claim 29 further including, prior to the carrying step:
  - aligning the print media along an alignment wall;
  - forming an image on the print media; and
  - carrying the print media to the registration mechanism.